



UNITED STATES DEPARTMENT OF COMMERCE
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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/047, 164 04/12/93 RAMANUJAN

R 17380770

EXAMINER

RAY, G

WAYNE M. KENNARD
KENYON & KENYON
ONE BROADWAY
NEW YORK, NY 10004

E3M1/0630

ART UNIT

PAPER NUMBER

19

2305

DATE MAILED:

06/30/94

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined Responsive to communication filed on APRIL 13, 94. This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
2. Notice of Draftsman's Patent Drawing Review, PTO-948.
3. Notice of Art Cited by Applicant, PTO-1449.
4. Notice of Informal Patent Application, PTO-152.
5. Information on How to Effect Drawing Changes, PTO-1474.
6.

Part II SUMMARY OF ACTION

1. Claims 1-39 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims _____ have been cancelled.

3. Claims _____ are allowed.

4. Claims 1-35 and 37-39 are rejected.

5. Claims 36 are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action.

9. The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been approved by the examiner; disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).

12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. Other

EXAMINER'S ACTION

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1. Claims 1-39 are presented for examination.
2. Claims 1-29 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner notes the following ambiguities.

As per claim 1, the phrase "a plurality of bus elements, with each of the plurality of bus elements selectively making a request for access to at least one other bus element" (lines 2-4) is vague and indefinite because it is unclear as to how the bus elements selectively make requests. The examiner believes that the bus elements do not selectively make requests. It is the arbitration logic selects one request at a time from the requests of the bus elements. Rephrasing is required to make proper sense.

As per claims 2-29, the claims incorporate the deficiencies of the parent claim.

3. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

4. Claims 1-19 and 30-35 and 37-39 are rejected under 35 U.S.C. § 103 as being unpatentable over US Patent 4,991,084 issued to Rodiger et al. in view of US Patent 4,837,682 issued to Culler.

As per claim 1, Rodiger et al. teach the claimed:

"a plurality of bus elements ...": Rodiger's plurality of bus elements ... (See Fig. 1, elements 11-14);

"a central unit having a plurality of bus inputs and a plurality of bus outputs": Rodiger's central unit having a plurality of bus inputs and a plurality of bus outputs (See Fig 1, the circuit comprising elements 31-34; 41-44; 51-54; 61-64);

"a first plurality of uni-directional point-to-point buses for coupling in a first direction the bus elements to the central unit bus inputs": Rodiger's first plurality of uni-directional point-to-point buses for coupling in a first direction the bus elements to the central unit bus inputs (see Fig. 1, outputs from PROC 11-14);

"a second plurality of uni-directional point-to-point buses for coupling in a second direction each output of the central unit to a respective bus element": Rodiger's second plurality of uni-directional point-to-point buses for coupling in a second

direction each output of the central unit to a respective bus element (see Fig. 1, outputs from elements 61-64); and

"arbitration logic connected to the plurality of bus inputs of the central unit ... for granting each of the bus elements access to the at least one other bus element": Rodiger's arbitration logic connected to the plurality of bus inputs of the central unit ... for granting each of the bus elements access to the at least one other bus element (See Fig. 1, arbitration logic comprising elements 41-44).

The reference of Rodiger et al. fails to expressly teach the limitation of "one bus element making a request for access to at least one other bus element (processor ? or memory ?)". However, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rodiger to include "processor to processor communication", i.e., to send outputs of elements 61-64 of Fig. 1 also to PROC 11-14 respectively because it is well within the skill of an ordinary person to realize that outputs from a bus can be coupled to a memory and also to its associated processor (Culler teaches that in Fig. 6, elements 544, 548). It would be obvious because that would make Rodiger's system more flexible and efficient by allowing communication between processor to memory and also processor to processor (if anyone needs processor to processor communication). Furthermore, it is the continuing goal of system

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designer to modify the system as per customer's requirement using available technology. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rodiger et al. using the feature of Culler as shown in Fig. 6, elements 544, 548 to obtain the claimed invention.

Applicant's arguments filed on April 13, 1994 have been fully considered but they are not deemed to be persuasive. The invention as claimed reads on the above prior art.

As per claims 2-4, the limitations of the claims, i.e., "system further includes a state device" (claim 2), use of "OR gate" (claim 3), "multiplexer" (claim 4) do not patentably distinguish over the prior art because these are art recognized equivalents and thus it is a matter of specific engineering choice. The above concept is so well known that no reference is considered necessary. See MPEP 706.02a.

As per claims 5-19, these claims are rejected for similar reasons as in claims 2-4.

As per claim 30, this claim is rejected for similar rationale as in claim 1.

As per claims 31-32, these claims are rejected for similar reasons as in claims 2-4.

As per claim 33, this claim recites a method which parallels apparatus claim 1. In teaching the construction and use of the

device the combination of the references of Rodiger et al. and Culler teaches a corresponding method.

As per claim 34, Rodiger et al. teach the claimed:

"wherein the bus elements include a plurality of central processing units and a shared memory": Rodiger's bus elements include a plurality of central processing units and shared memories (See Fig. 1).

As per claim 35, Rodiger et al. teach the claimed:

"selecting step further comprises selecting between the inputs on the first buses from the central processing unit and the bus from the memory": Rodiger's selecting inputs from the processors and memory (See Fig. 1).

As per claims 37-38, these claims are rejected for similar reasons as in claims 2-4.

As per claim 39, Rodiger et al. teaches the claimed:

"wherein a bus element includes a CPU": Rodiger's bus element includes a CPU (see Fig. 1, elements 11-14).

5. Claim 36 is objected to as being dependent upon a rejected base claim.

6. Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS

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ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gopal C. Ray whose telephone number is (703) 305-9647.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.

Gopal C. Ray
GOPAL C. RAY
PATENT EXAMINER
GROUP 2300